

Claims

What is claimed is:

1. An ultraviolet fluorescence detector comprising:
an excitation light source;
a sample receiving platform capable of receiving excitation light from said excitation light source;
an ultraviolet light detector for receiving induced fluorescent energy;
an analysis module for matching said induced fluorescent ultraviolet energy against a previously determined signature spectrum.
2. The ultraviolet fluorescence detector of claim 1, further comprising a camera platform.
3. The ultraviolet fluorescence detector of claim 1, further comprising a first optics for directing said excitation light to said sample receiving platform.
4. The ultraviolet fluorescence detector of claim 3, wherein said first optics includes at least one of an optical lens, a shutter, a filter, a mirror, a fiber optic coupler and an optical fiber.
5. The ultraviolet fluorescence detector of claim 4, wherein said filter is a filter wheel.
6. The ultraviolet fluorescence detector of claim 1, further comprising an input optic for passing the induced fluorescent energy to said ultraviolet light detector.

7. The ultraviolet fluorescence detector of claim 6, wherein the input optic is an F/2 lens having a diameter over approximately 1.0 meters.
8. The ultraviolet fluorescence detector of claim 1, further comprising a second optic for receiving said induced fluorescent energy.
9. The ultraviolet fluorescence detector of claim 8, wherein said second optic includes at least one of a mirror, a lens, a beam splitter, a shutter, a fiber optic fiber, a fiber optic coupler, a filter and an input slit.
10. The ultraviolet fluorescence detector of claim 6, wherein said filter is a filter wheel.
11. The ultraviolet fluorescence detector of claim 1, wherein said ultraviolet light detector includes a spectrograph.
12. The ultraviolet fluorescence detector of claim 1, further comprising a CCD detector.
13. The ultraviolet fluorescence detector of claim 10, wherein said CCD detector is cooled.
14. The ultraviolet fluorescence detector of claim 1, wherein said analysis module includes a computer.
15. The ultraviolet fluorescence detector of claim 1, further comprising a signal processor.
16. The ultraviolet fluorescence detector of claim 1, further comprising at least one power source providing power to said excitation light source, said

sample receiving platform, said ultraviolet light detector and said detection module.

17. The ultraviolet fluorescence detector of claim 1, wherein said excitation light source includes at least one of a tunable laser, a flash lamp, an ultraviolet LED and a solid state ultraviolet diode.

18. The ultraviolet fluorescence detector of claim 1, wherein said excitation light source includes a laser source of approximately 0.1 to approximately 250 millijoules.

19. The ultraviolet fluorescence detector of claim 1, wherein the excitation light source is a pulsed light source.

20. The ultraviolet fluorescence detector of claim 1, further comprising a controller that monitors said excitation light source for the purpose of detected substance spectrum stabilization.

21. The ultraviolet fluorescence detector of claim 1, wherein ultraviolet fluorescence detector detects ultraviolet signals between approximately 240 nanometers and approximately 540 nanometers.

22. The ultraviolet fluorescence detector of claim 1, further comprising a light minimizing enclosure.

23. The ultraviolet fluorescence detector of claim 22, wherein said light minimizing includes a reflective spherical surface.

24. The ultraviolet fluorescence detector of claim 1, further comprising a handheld scanner.

25. The ultraviolet fluorescence detector of claim 24, wherein said hand held scanner connect to said ultraviolet fluorescence detector via fiber optic materials.

26. The ultraviolet fluorescence detector of claim 1, wherein said ultraviolet fluorescence detector can detect ultraviolet emissions from a chemical compound.

27. The ultraviolet fluorescence detector of claim 23, wherein said chemical compound includes at least one of a drug, an explosive, a biological agent, a biochemical agent, a nuclear material, a narcotic material, a petroleum material and a waste material.

28. A method for detecting and analyzing chemical substances using ultraviolet fluorescence comprising the steps of:

directing an excitation light source to a target material;
receiving induced fluorescent energy from said target material; and
determining the nature of the target material based upon the received induced fluorescent energy.

29. The method of claim 28, wherein the said step of directing includes directing excitation light through first optics that include at least one of an optical lens, a shutter, a filter, a mirror, a fiber optic coupler and an optical fiber.

30. The method of claim 29, wherein the received induced fluorescent energy has passed through an optic having an F/2 mirror and is at least approximately 1.0 meters in diameter.

31. The method of claim 28, wherein the said step of determining includes comparing parameter ranges for said received induced fluorescent energy with predetermined ultraviolet parameters and defining a match based on a predetermined standard deviation between said received induced fluorescent energy and predetermined ultraviolet parameters.